



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : H01T 1/24	A1	(11) International Publication Number: WO 00/39901 (43) International Publication Date: 6 July 2000 (06.07.00)
(21) International Application Number: PCT/SE99/02485 (22) International Filing Date: 23 December 1999 (23.12.99) (30) Priority Data: 9804538-8 23 December 1998 (23.12.98) SE (71) Applicant (for all designated States except US): JENSEN ELEKTRONIK AB [SE/SE]; Box 101, S-191 22 Sollentuna (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): SCHLEIMANN-JENSEN, Johan [SE/SE]; Ekbacksvägen 33 A, S-182 34 Danderyd (SE). BOMAN, Mats [SE/SE]; Box 1086, S-740 21 Järlåsa (SE). NILSSON, Jan-Åke [SE/SE]; Trädgårdsvägen 29, S-191 46 Sollentuna (SE). ÖHMAN, Kjell [SE/SE]; Rosenlundsvägen 9, S-197 34 Bro (SE). (74) Agent: GÖTEBORGS PATENTBYRÅ DAHLS AB; Sjöporten 4, S-417 64 Göteborg (SE).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: GAS DISCHARGE TUBE (57) Abstract <p>A new gas discharge tube with end electrodes having chemically inert surfaces is disclosed. As the surfaces are resistant to the build-up of layers, such as oxide layers, a discharge tube according to the invention exhibits higher selectivity and better performance (e.g. higher heat-resistance and longer life-cycle time) than prior art devices, simultaneously as it offers an environmentally acceptable solution.</p> <div style="text-align: center;"> </div>		

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/02485

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H01T 1/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H01T, H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 2742502 A1 (SIEMENS AG), 29 March 1979 (29.03.79), page 5, line 11 - page 6, line 2	1-4,7-12
Y	--	5,6
Y	EP 0044894 A1 (RELIABLE ELECTRIC COMPANY), 3 February 1982 (03.02.82), page 6, line 26 - page 7, line 12	5,6
A	--	9,10
X	US 4407849 A (LAIRD K. S HAAS ET AL), 4 October 1983 (04.10.83), column 2, line 39 - column 3, line 13	1-12
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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

25 May 2000

Date of mailing of the international search report

30 -05- 2000

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/02485

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4037266 A (JOHN HERSHEL ENGLISH ET AL), 19 July 1977 (19.07.77), column 1, line 12 - column 4, line 24 --	1-12
X	US 4672259 A (ORAL L. RIGGINS ET AL), 9 June 1987 (09.06.87), column 2, line 20 - column 3, line 23 -- -----	1-12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE99/02485

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: **1-12 in part**
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

see next page

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).:

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE99/02485

Present claims relate to a gas discharge tube comprising electrodes defined by reference to a desirable property, namely the electrodes having "chemically inert surface", "the inert surface is free from any layers..", "the surface is resistant to". The claims cover all gas discharge tubes having these properties, whereas the application provide support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a few such gas discharge tubes. Therefore, a novelty search covering the whole claimed scope is not possible.

Consequently, the search performed is only considered to cover the embodiments described in the application.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established will not be the subject of an international preliminary examination (Rule 66.1(e) PCT). This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SE 99/02485

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
DE	2742502	A1	29/03/79	NONE	
EP	0044894	A1	03/02/82	NONE	
US	4407849	A	04/10/83	CA 1183802 A	12/03/85
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				FR 2518832 A,B	24/06/83
				GB 2111862 A,B	13/07/83
				JP 58111285 A	02/07/83
				SE 8207152 A	24/06/83
US	4037266	A	19/07/77	NONE	
US	4672259	A	09/06/87	CA 1289615 A	24/09/91